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I do not believe that *Rhus Toxicodendron* as the common name, without further specifications including the two allies now described and a large number of their kin would be satisfactory to the majority of botanists of the present day.

Artemisia caudata **calvens** var. nov.

Planta humilis, plerumque 1.5–3 dm. alta. Caules et folia juvenilia indumento denso, cano operta, quod in caule mox evanescit, nisi sparse, praecipue circum pètiolos, ubi saepe permanet; in foliis omnino vel partim stabile est. Folia brevia, 3–6 cm. longa.

Rather low, usual length 1.5–3 dm. Stems and leaves covered with a thick, gray indument when young. This disappears soon on the stem, except in spots, especially around the petioles, where it often is permanent; on the leaves it is wholly or partly persistent. Leaves short, 3–6 cm. long.

Collected by the writer in gravel at Willow City, Bottineau County, on August 26, 1889.

Leeds, North Dakota.

THE TRITOGONIA TUBERCULATA MUDDLE.

By S. W. Geiser.

During the past few years, considerable confusion has arisen in regard to the proper names to be applied to the species described by Barnes, 1823, as *Unio tuberculatus*. The result is that a number of different names have been applied. With the purpose of correcting the nomenclature of a former geographic catalogue of mine, I began some time ago the study of the synonymy of this species. As a result of my studies it seemed advisable to apply a new name *Quadrula Parkeri*[1] to this species.

In order to clear up the present confusion of names I have decided to take all the names that, so far as I can learn, have been applied to this species up to Nov. 1, 1911. I shall first give a list of the synonyms, and then separately discuss their availability as names for the present species.

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[1] The Academician I.: 15. [Oct. 30, 1911].

The names hitherto applied are:

(1) *Unio tuberculatus* Barnes, 1823.
(2) *Tritogonia tuberculata* (Barnes) Simpson, 1900.
(3) *Quadrula tuberculata* (Barnes) Ortmann, 1911.
(4) *Unio verrucosus* Say, 1834.
(5) *Tritogonia verrucosa* (Rafinesque) Agassiz, 1852.
(6) *Tritogonia verrucosa* (———) H. M. Smith. 1899.
(6) *Quadrula verrucosa* (Say) Geiser, 1911 (Combinatio hypothetica).
(7) *Unio pustulata* Swainson, 1840.
non *Unio pustulatus* Lea, 1834.
(8) *Unio gigas* Sowerby, 1867.
(9) *Quadrula obesa* (Simpson) Vanatta, 1910.
(10) *Quadrula Parkeri* Geiser, 1911.

1. UNIO TUBERCULATUS Barnes, 1823, Am. Journal Sci., VI.: 125, pl. VII., figs. 8a, 8b.

Agassiz,[1] 1852, transferred the species to the genus *Tritogonia* of Agassiz as *Tritogonia verrucosa* (Raf.) Agassiz. Simpson[2] transferred the species also to the genus *Tritogonia*, employing, however, the specific name *tuberculata* for reasons that will be shown under nomen 4.

2. TRITOGONIA TUBERCULATA (Barnes) Simpson, 1900, Proc. U. S. Nat. Mus., XXII: 608.

Researches since carried on independently by Sterki[3] and Ortmann[4] show that *Tritogonia* has no standing as a genus, but groups rather with *Quadrula apiculata*, as shown by Pilsbry[5] and confirmed by von Ihering[6] and Ortmann.[7] These facts have compelled Ortmann[8] to transfer the species to that genus.

3. QUADRULA TUBERCULATA (Barnes) Ortmann, 1911, Mem. Carnegie Mus. IV.: 340.

Simpson in his synopsis[9] transferred the species described by Rafinesque[1] as *Obliquaria* (*Rotundaria*) *tuberculata* to the genus *Quadrula* and thus Ortmann's *comb. nov.* is preoccupied. The fact that Rafinesque's species properly belongs in the genus *Rotundaria* as urged by Ortmanni[2] does not affect the priority of the combination as used by Simpson. In reference to this matter Dr. W. H. Dall[3] says, "This name [*Quadrula tuberculata* (Raf.) Simpson, 1900] having been accepted by Simpson in 1900, no subsequent different use of it is permissible." Ortmann's new combination is therefore unavailable.

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[1] Archiv fur Naturgeschichte, Jahrg., Bd. I.: 48. [1852.]
[2] Proc. U. S. Nat. Mus. XXII.: 608. [1900.]
[3] Nautilus XXI.: 48. [1907].
[4] Mem. Carn. Mus. IV.: 329. [1911.]
[5] Nautilus V.: 76. [1891].
[6] Ibid. XV.: 39. [1901.]
[7] An. Carn. Mus. V.: 193. [1909].
[8] Mem. Carn. Mus. IV.: 340. [1911].
[9] Proc. U. S. Nat. Mus. XXII.: 795. [1900].

4. UNIO VERRUCOSUS Say, 1834, Am. Conchology, Part VI.

In his paper[4] which was published with the sixth number of the Am. Conchology, Say uses the name *Unio verrucosus* and credits the species to Rafinesque. Rafinesque described, indeed, in 1820,[5] a species which he called *Obliquaria* (*Ellipsaria*) *verrucosa,* but neither his figure nor his description are intelligible and Say must be held responsible for the name. Hence Barnes' name has priority over the name *verrucosa.*

Agassiz, as before noted, transferred the species to the genus *Tritogonia* as *Tritogonia verrucosa* (Raf.) Agassiz.

5. TRITOGONIA VERRUCOSA (Raf.) Agassiz, 1852, Arch. f*u*r Naturg. Jahrg. 18, Bd. I: 48.

5. a. TRITIGONIA VERRUCOSA (Raf.) H. M. Smith, 1899, Bull. U. S. Fish Com.: 291, pl. LXXXI.

Merely an error in the spelling of the generic name.

6. QUADRULA VERRUCOSA (Say[6]) Geiser, 1911. The Academician I: 15. (*combinatio hypothetica*).

The new combination is, however, preoccupied. Baker, 1898[7], transferred the species described by Barnes[8] as *Unio verrucosus* to the genus *Quadrula*, and thus the hypothetical name is a hononym to *Quadrula verrucosa* (Barnes) Baker, 1898.

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[1] An. Gen. Sci. Brux. V.: 308. [1820].

[2] Ortmann *in lit.*

[3] Dall *in lit.*

[4] Entitled, "An attempt to exhibit a Synonymy of the Western North American species of the genera *Unio* and *Alasmodonta.*"

[5] An. Gen. Sci. Brux. V: 304 [1820].

[6] Erroneously credited to Rafinesque.

[7] Nat. Hist. Surv. Chgo. Acad. Sci. III (1): 85, pl. XXIII [1898].

[8] Am. Jour. Sci. VI: 123, pl. V, fig. 6 [1823].

7. UNIO PUSTULATA Swainson, 1840. Treatise on Malacology p. 271, fig. 54, d.

Name preoccupied by *Unio pustulatus* Lea, 1834 = *Quadrula pustulata* (Lea) Simpson, 1900.

8. UNIO GIGAS Sowerby, 1867, Cont. Reeve's Conch. Iconica, XVI: pl. LVI., fig. 287.

Simpson[1] says that he thinks this is a rather high male *Tritogonia tuberculata*. Mr. Edgar A. Smith, of the British Museum, notes in a personal communication that the whereabouts of the type of the figure given in the *Conchologia* is unknown. He states further that, in his opinion, "it is the adult form of *U. Cumingii*, Lea, a Chinese form (figured op. cit. fig. 264). River Ohio, the locality given for *gigas* in the Conch. Incon. I regard a as one of the many mistakes in that work. I do not perceive any resemblance of *gigas* to *U. verrucosa* = *tuberculata*." I have been obliged to abide by Mr. Smith's decision in this matter, as the work cited is very rare and expensive, and I have been unable to gain access to it, although I have applied to all the great libraries in America. However, if it shall be shown that *U. gigas* Sowerby, 1867, was ever really applied to a specimen of *U. tuberculatus* Barnes, this specific name will be available for transference to the genus *Quadrula*. Nevertheless, it will be difficult, if not impossible, to locate the type of the icon, as it was sold, perhaps, with the collection. (E. A. Smith.)

9. QUADRULA OBESA (Simpson) Vanatta, 1910, The Nautilus XXIII: 102.

Simpson[2] described a variety of *Tritogonia tuberculata* as *Tritogonia tuberculata obesa*. This variety is considered valid, Wright & Walker[3] listing it as a valid subpsecies in their Checklist. Vanatta used the "originally varietal name *obesa* Simps. instead of *Tritogonia tuberculata* Bar., as the name *tuberculata* is preoccupied in *Quadrula*."[4] But if we are to consider *Tritogonia*

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[1] Proc. U. S. Nat. Mus. XXII 608, footnote 3, [1900]..

[2] Op. locis sup. cit. ,p. 609. [1900].

[3] Checklist, N. A, Naiades, p. 18. [Detroit, Mich., 1902.]

[4] Op. Vanattæ citat. p. 102.

tuberculata obesa as a valid subspieces, it is highly objectionable to "transfer the name of a variety to the main species."[1] Dall[2] also states that "a valid varietal name is not a synonym" and that if valid, the subspecies *obesa* must stand.

Quadrula Parkeri Geiser, 1911, The Academician I: 15.

Synonymy discussed, new name applied, and reference made to type icon (*Upper Iowa Collegion* XXVII: 50, fig. 7, [1909]). The description was also reprinted in *Upper Iowa Collegian* XXIX(1): 3-4, [1911.]

Briefly, then to recapitulate. The species in question is not an *Unio*, and hence the original combinations can not be paplied. Neither is the species to be included in the pseudogenus *Tritogonia*, for, as has been shown, this "genus" has no standing. The anatomy of this species includes it in the genus *Quadrula*. However, both *Quadrula tuberculata* and *Quadrula verrucosa* would be homonyms to previously established combinations. *Unio pustulata* Swainson, 1840, is stillborn, and even if transferred to *Quadrula* would also be preoccupied by *Quadrula pustulata* (Lea) Simpson. It is extremely doubtful if *Unio gigas* Sowerby, 1867, was ever applied to a *Tritogonia tuberculata*. Vanatta's name si objectionable since he has used valid subspecific name for the main species. It appears, then, that all the synonyms enumerated by Simpson are inapplicable, and that *Quadrula Parkeri* must stand as the correct name or this species, unless some other synonym exists which has escaped my notice.

Dr. A. E. Ortmann and Mr. Edgar A. Smith object to the invalidation of generic transferrences because an author has previously erroneously transferred a similar specific name to that genus. As show under nomen 3, however, if we were not to insist upon a strict observance of the rules governing homonyms, endless confusion would be caused. For example, if we would permi the use of *Quadrula tuberculata* (Barnes) Ortmann, 1911, there would be a cause continually for confusion with *Quadrula tuberculata* (Raf.) Simpson, 1900. We *must*, therrfore, treat these generic transferrences exactly as original names, in order to avoid endless confusion. The law of priority, though perhaps seemingly unjust in many of its verdicts, must be strictly applied if we would rescue Zoology from becoming a mere chaos of names.

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[1] Ortman *in. lit.*.

[2] Dall *in lit.*.

To the following specialists and malacologists I am indebted for aid and advice in the preparation of this paper: Dr. A. E. Ortmann, of the Carnegie Museum at Pittsburg; Dr. Josua Lindahl, Chicago; Drs. Dall and Bartsch of the U. S. National Museum; Dr. H. A. Pilsbry, of the Philadelphia Academy of Natural Sciences; Mr. Chas. W. Johnson, Curator of the Boston Society of Natural History; Dr. Edw. S. Morse, Director of the Peabody Museum; Mr. Frank C. Baker, Curator of the Chicago Academy of Sciences; and Mr. Edgar A. Smith, of the British Museum.

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BATHING HABITS OF OUR BIRDS.

The writer has often thought that a very interesting article might be prepared by some careful observer on the bathing habits of our birds. These observations would be very valuable, for no writer has as yet given us any adequate information on this subject. In order to obtain the facts about the bathing habits of our birds, the observer will have to spend much time at some lake-side where birds usually go to bathe. The writer has thus far made but few observations on this subject. He gives them more to stimualte interest in, rather than to offer complete knowledge of, this phase of bird-life.

Two distinct methods are observable in the bathing habits of birds. The more common way is by wading into the water and wetting the head and body. The less common method is by flying out over the water and dipping so as to wet the entire body.

Among the species that bathe by wading are the Crow, Purple Grackle, Blue Jay, Indigo Bird, Robin, Goldfinch, Catbird, Brown Thrasher, Song Sparrow, Crowbird, Baltimore Oriole, Towhee. In winter the Crow bathes where the water in not frozen at the edge of lakes. The Purple Grackle also bathes in very cold weather. The Blue Jay looks blackish after bathing. The Robin bathes frequently in warm weather.